FIVE NEW MYRTACEAE FROM SOUTHEASTERN BRAZIL

Marcos Sobral
DCNAT - UFSJ
São João del-Rei, MG, BRAZIL
marcos_sobral@hotmail.com

Marcelo da Costa Souza
Dep. Botânica - UFRRJ
Seropédica, RJ, BRAZIL
souza.m@gmail.com

Ludovic Jean Charles Kollmann
Museu de Biologia Mello Leitão
Santa Teresa, ES, BRAZIL
ludovic@limainfo.com.br

Osny Tadeu Aguiar
Instituto Florestal de São Paulo
São Paulo, SP, BRAZIL
tadeu@iflorestal.sp.gov.br

André Luís Casarin Rochelle
Dep. Botânica - Unicamp
Campinas, SP, BRAZIL
rochelle@unicamp.br

Kelly Antunes
Dep. Botânica - Museu Nacional
Rio de Janeiro, RJ, BRAZIL
klybio@yahoo.com.br

ABSTRACT

We here describe, illustrate, and evaluate the conservation status of five new species from southeastern Brazil: **Calyptranthes solitaria, C. ubatubana, Eugenia dipetala, Myrcia cacuminis,** and **Plinia ambivalens.** *Calyptranthes solitaria,* collected in the states of Minas Gerais, Rio de Janeiro, and São Paulo, is apparently related to *Calyptranthes tricona,* from which it is kept apart by the uniflorous inflorescences and glabrous adult leaves. *Calyptranthes ubatubana* is apparently restricted to the state of São Paulo and is related to *Calyptranthes lanceolata,* from which it is distinguished by its pilose inflorescences and flowers. *Eugenia dipetala* and Myrcia cacuminis are from the state of Espírito Santo. *Eugenia dipetala* is distinguished from other Brazilian species by flowers showing two petals; *Myrcia cacuminis* is related to *M. capitata,* from which it is distinguished by the petiolate leaves, lanceolate blades, and triflorous inflorescences. *Plinia ambivalens,* from Espírito Santo and Bahia, is related to *Plinia involucrata,* from which it differs by the leaves with larger petioles, venose blades, and ovaries with multiovulate locules.

KEY WORDS: Mata Atlântica, *Calyptranthes, Eugenia, Myrcia, Plinia*

RESUMO

São descritas, ilustradas e avaliadas quanto à sua conservação **Calyptranthes solitaria, C. ubatubana, Eugenia dipetala, Myrcia cacuminis** e **Plinia ambivalens.** *Calyptranthes solitaria*, coletada nos estados de Minas Gerais, Rio de Janeiro e São Paulo, é aparentemente próxima de *Calyptranthes tricona*, diferindo pelas inflorescências unifloras e folhas adultas glabras. *Calyptranthes ubatubana*, aparentemente restrita ao estado de São Paulo, é próxima de *C. lanceolata*, diferindo pelas inflorescências e flores pilosas. *Eugenia dipetala* e *Myrcia cacuminis* ocorrem no estado do Espírito Santo. *Eugenia dipetala* difere de todas as espécies brasileiras pela presença de duas pétalas; *Myrcia cacuminis* é próxima de *Myrcia capitata*, diferindo pelas folhas pecioladas, lâminas lanceoladas e inflorescências trifloras. *Plinia ambivalens*, dos estados da Bahia e Espírito Santo, é próxima de *Plinia involucrata*, diferindo pelas folhas com pecíolos mais longos, lâminas com venação evidente e ovários com lóculos multiovulados.

KEY WORDS: Mata Atlântica, *Calyptranthes, Eugenia, Myrcia, Plinia*

INTRODUCTION

Myrtaceae comprise 22 native genera and about 990 species in Brazil (Sobral et al. 2014), from which about 680 grow in the coastal Brazilian Atlantic rainforest, which extends about 5,000 km from northeastern to southern Brazil (Silva & Casteleti 2005), embracing a considerable part of Brazilian biological diversity and being considered by Myers et al. (2000) as one of the diversity hotspots worldwide. However, because it has been subject to such intense anthropogenic pressures such as urban expansion, farming, mining and legal or illegal logging that reduced its cover to less than 10% of its original extent (Galindo-Leal & Câmara 2005). Nevertheless, its diversity is still poorly surveyed, and intensive collection efforts in this biome frequently bring to light several undescribed and in some cases extremely local species. The examination of recent collections from southeast-

ern Brazil have revealed to us some species that we consider as new, which are described here. For the evaluation of their conservation status, we used the conservation criteria proposed by IUCN (2012). In order to get an estimate of the collection efforts in the municipalities cited in this paper, we compared the available data on collection numbers (CRIA 2014) and the total area (IBGE 2014) of each municipality; although not especially informative for conservation issues, this estimate can be interesting, since the scarcity of specimens from a well surveyed location may suggest a real rareness of one species. For this, we consider as moderately surveyed areas those with more than three gatherings/km² (an index proposed by Shepherd 2003); since the average of gatherings in Brazil is smaller than one collection/km² (Sobral & Stehmann 2009), the Shepherd index may serve as a good parameter for the intensity of botanical survey.

NEW SPECIES

Calyptranthes solitaria Sobral, Aguiar, & Antunes, sp. nov. (**Figs. 1–2**). TYPE: BRAZIL. SÃO PAULO: Mun. Salesópolis, Parque Estadual da Serra do Mar, trilha da Torre, 23 Feb 2005, *F.M. Souza, M.T.Z. Toniato & D. Souza 495* (HOLOTYPE: SPSF; ISOTYPE: HUFSJ).

This species is apparently related to *Calyptranthes tricona,* differing through its coriaceous blades that easily fracture when bent (versus chartaceous blades, bending without fracturing), which are mostly glabrous abaxially when adult (vs. visibly pilose), its uniflorous inflorescences with bracts, if present, deciduous early before anthesis (vs. triflorous inflorescences with lanceolate bracts subtending the flowers and frequently persisting through anthesis) and flowers with one or two petals (vs. petals absent).

Tree 2–14 m high. Twigs terete, dichotomously branched, the young ones velutinous, with simple brown trichomes to 2 mm, the older ones entirely glabrous, the young cortex exfoliating, in some internodes tearing longitudinally and falling as one entire piece; internodes 25–40 × 1–2.5 mm, the nodes slightly swollen and with circular scars due to the exfoliation of the cortex, more visible at the proximal side of the node. Leaves with petioles 4–10 × 1–2 mm, glabrous; blades elliptic, narrowly elliptic or ovate, 40–90 × 16–35 mm, 1.7–2.8 times longer than wide, coriaceous when adult, the young ones markedly discolorous, green and with scattered simple trichomes to 0.5 mm adaxially, brown and densely covered with an arachnoid indumentum of curled simple trichomes 0.5–1 mm, along with some scattered straight simple trichomes to 2 mm, mature leaves glabrous or with very scattered trichomes on the abaxial surface, slightly discolorous, the adaxial side green or dark brown and with the venation very delicately sulcate, the abaxial surface light, dull green, with glandular dots about 0.1 mm in diameter, ca. 5/mm², visible only when examined against light; apex acuminate, 2–8 mm; base cuneate; midvein moderately sulcate adaxially and prominent abaxially; lateral veins 10 to 18 at each side, plane or finely sulcate adaxially, moderately prominent abaxially, departing from the midvein at 45–60°; marginal vein 1–2 mm, occasionally a second vein visible at 0.2–0.3 mm from the margin, the margin itself revolute and with a pale yellow thickening 0.1–0.2 mm wide. Inflorescences uniflorous, axillary, one or two per axil, the pedicel 20–25 × 1–1.5 mm, with a dense indumentum of simple brown erect or ascending trichomes to 1 mm; bracts not seen, possibly early deciduous; bracteoles not seen, apparently deciduous before anthesis due to evident scars at the base of the flowers; flower buds ovate, 6–8 × 4 mm, densely covered with trichomes as the inflorescences, with an evident apiculum to 1 mm, opening through a calyptra to 1 × 4 mm, glabrous internally; petals one or two, rounded, to 1 × 1 mm (in bud), glabrous; stamens about 200, to 3 mm (in bud), the anthers globose, 0.3 × 0.3 mm, eglandular; staminal ring to 2 mm in diameter; calyx tube 1–2 mm deep, glabrous; style to 4 mm (in bud), the stigma acute, minutely papillose; ovary with two locules and two ovules per locule. Fruits elliptic, immature, with trichomes as the flowers, 10 × 8 mm; seeds not examined.

Habitat, distribution and phenology.—*Calyptranthes solitaria* is a rainforest tree from the states of Minas Gerais, Rio de Janeiro and São Paulo, growing at altitudes between 850–1500 m; flowers were collected in February and April and fruits in May.

Conservation.—This species was collected in four municipalities of Minas Gerais, Rio de Janeiro and São Paulo, which total area is of 1,640 km² (IBGE 2014); these municipalities have been intensively surveyed, with 6,920 collections from Rio Preto, 2,262 from Salesópolis, 17,777 from Itatiaia and 18,585 from Ubatuba (data from CRIA 2014), with a collection density of 27.7 gatherings/km², which is notably higher than the Brazilian average (Sobral & Stehmann 2009); the relative scarcity of collections of this species may be an indicative of its

Fig. 1. *Calyptranthes solitaria*. Isotype at HUFSJ.

Fig. 2. *Calyptranthes solitaria*. Detail of inflorescences, from isotype (scale = 10 mm).

rareness. According to IUCN criteria (IUCN 2012), this species can be considered as vulnerable (VU), fitting criteria B1 ab(iii), since its extent of occurrence is less than 20,000 km² (criterion B1), its habitat is severely fragmented (criterion a) and the habitat quality and area are prone to decline, since two collection sites are not included in biological reserves and are under anthropogenic pressures such as farming and agriculture.

Affinities.—Due to its inflorescence structure, it is apparently related to *Calyptranthes tricona* D.Legrand (for description see Legrand & Klein 1971; Tressens & Rodríguez 1996; or Sobral 2003), a species from the Atlantic forest growing from Minas Gerais to Rio Grande do Sul, from which it can be distinguished by the combination of characters given in the diagnosis. The uniflorous inflorescences of this species are reminiscent of *Calyptranthes pauciflora* O.Berg (for description see Berg 1857–1859:543), from southeastern Brazil, which also show mostly inflorescences with solitary flowers but sometimes also triflorous. Nevertheless, in spite of the inflorescence character, this species does not seem related to *Calyptranthes solitaria*, due to its narrowly elliptic blades and the inflorescences and flowers with densely appressed trichomes.

Etymology.—The epithet is derived from the Latin word for "lonely" or "solitary," alluding to the uniflorous inflorescences.

Paratypes. **BRAZIL. Minas Gerais:** Mun. Rio Preto, Serra Negra, propriedade do sr. Nene Rock, 24 Apr. 2013, *K. Antunes & R.J.V. Alves 455* (CESJ, HUFSJ, R). **Rio de Janeiro:** Mun. Itatiaia, Parque Nacional de Itatiaia, trilha do hotel Simon para os Três Picos, 19 May 1999, *A. Quinet 226* (BHCB, RB). **São Paulo:** Mun. Ubatuba, 19 Apr 2007, *R. Bertoncello 122* (BHCB, UEC).

Calyptranthes ubatubana Sobral & Rochelle, sp. nov. (**Figs. 3–4**). Type: BRAZIL. São Paulo: mun. Ubatuba, Picinguaba, fazenda Capricórnio, Jul 2007, *A. Rochelle 228* (holotype: UEC, isotypes: HUFSJ, RB).

This species is related to *Calyptranthes lanceolata*, from which it is distinguished by the densely pilose inflorescences with flowers crowded at their apices (versus inflorescences and flowers glabrous, the inflorescences with flowers regularly distributed along axis).

Tree 3–7 m. Twigs terete, the young ones with a dense arachnoid indumentum of simple light brown to ochraceous trichomes, 2–2.5 mm long, soon deciduous, then the twigs completely glabrous, grey to dark brown, the distal internodes 35–50 × 2–3 mm, the one or two most distal internodes with stipule-like, lanceolate, adaxially folded cataphylls 40–50 × 8–10 mm, these occasionally with scattered asymmetrical dibrachiate trichomes 0.2–0.3 mm. Leaves with petioles 12–17 × 2 mm, glabrous or the young ones with trichomes as the twigs; blades oblong to oblong-lanceolate, 170–200 × 32–60 mm, 4 to 7 times longer than wide, glabrous or the young ones with scattered trichomes as the twigs along the midvein at the abaxial surface, concolorous when dry, with 4 to 5 glandular dots/mm², these smaller than 0.1 mm in diameter, visible abaxially; apex acuminate to 20 mm; base cuneate; midvein adaxially sulcate and prominent abaxially; lateral veins 25 to 35 at each side, visible and prominent on both sides, more so abaxially, departing from the midvein at 45–50°, with one to three secondary lateral veins between each pair; marginal veins two, 2–3 mm and 0.2–0.3 mm from the margin. Inflorescences paniculiform, axillary or terminal, ramified one to three times, pendulous, emerging with young shoots, the main axis 150–220 × 2–2.5 mm, slightly complanate, with a dense arachnoid indumentum

Fig. 3. *Calyptranthes ubatubana*. Unmounted isotype at HUFSJ.

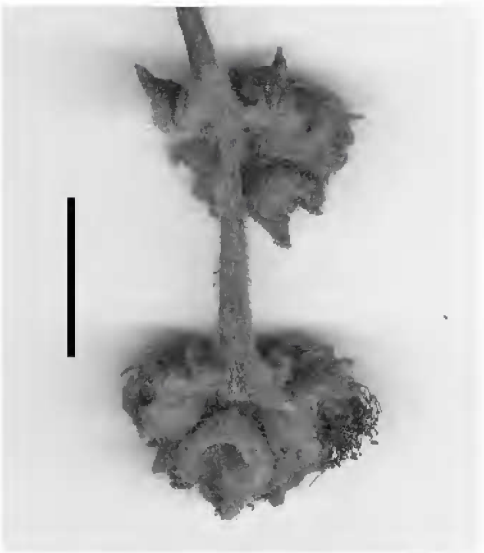

Fig. 4. *Calyptranthes ubatubana*. Detail of inflorescence; from isotype (scale = 10 mm).

of simple light brown or ochraceous trichomes to 2.5 mm, these occasionally deciduous at anthesis, flowers 45 to 60, crowded apically in capituliform structures formed by three to five extremely reduced axes; basal bracts lanceolate, glabrous, adaxially folded, to 40 × 6 mm; bracts subtending the first ramifications lanceolate or ovate-lanceolate, glabrous, 10–12 × 3 mm; bracts subtending the reduced axes widely ovate, to 5–7 × 7 mm, slightly acuminate, with light brown, occasionally deciduous trichomes to 1 mm abaxially, the adaxial surface glabrous, the ultimate segments with three to five flowers, each subtended by one bract similar to the basal bract and with two elliptic to lanceolate bracteoles, 5–6 × 2–3 mm, glabrous adaxially and abaxially with brown simple trichomes to 1 mm, occasionally enveloping the flower buds, these elliptic to obovate, 5–6 × 2–3 mm, uniformly covered with brown trichomes 0.5–1 mm, with the calyx completely fused and a blunt apiculum to 1 mm; flowers opening through an irregular calyptra to 2 mm in diameter; petals not seen in the flowers examined, probably abortive; stamens 100 to 120, 6–7 mm, the anthers globose to oblate, 0.4–0.5 × 0.4–0.6 mm, eglandular, opening through longitudinal slits; staminal ring to 2 mm in diameter; calyx tube 2–2.5 mm deep; style 10–11 mm, the stigma slightly capitate and papillose; ovary with two locules and two ovules per locule. Fruits not seen.

Habitat, distribution and phenology.—*Calyptranthes ubatubana* is a tree from coastal rainforests of the northern portion of the Brazilian state of São Paulo, where it was collected at altitudes 350–400 m. Flowers were collected in April and July, but they were also observed in March (Rochelle, pers. obs.).

Conservation.—Considering the limited information currently available for this species, known for the moment from two collections, assigning a conservation status for it is premature, even considering the fact that it comes from the Brazilian Atlantic coastal forest, one of the most significant hotspots for conservation in the planet (Myers et al. 2000). Also, the existence of only two collections being known from a location intensively surveyed (20,324 gatherings in 723 km², with an average of 28 collections/km²; data from CRIA 2014 and IBGE 2014) may be an indicative of its rarity. Nevertheless, as there are no additional environmental informations, we think it is convenient for the moment scoring it as Data Deficient (DD), according to IUCN criteria (IUCN 2012).

Affinities.—This species is related to *Calyptranthes lanceolata* O. Berg (for description see Legrand & Klein 1971), a species also found in the Brazilian coastal Atlantic forest from the states of Rio de Janeiro to Santa Catarina, from which it can be distinguished through the characters cited in the diagnosis.

Etymology.—The epithet is derived from the municipality where the type specimen was collected.

Paratype. **BRAZIL. São Paulo:** Mun. São Sebastião, Parque Estadual da Serra do Mar, 23°45'S, 45°36'W, 20 Apr 2000, *A.A. de Oliveira et al.* (plus 9 collectors) *3624* (HUFSJ, UEC).

Eugenia dipetala Sobral & Kollmann, sp. nov. (**Figs. 5–6**). Type: BRAZIL. Espírito Santo: Mun. Santa Maria de Jetibá, 13 Mar 2003, *L. Kollmann 6035* (holotype: MBML; isotype: BHCB).

This species resembles in the leaf morphology *Eugenia gracillima*, but the blades are thicker, strongly bullate and markedly narrower in outline (versus more or less membranous, smooth and elliptic in outline). Additionally, the presence of only two petals distinguishes it from *E. gracillima* as well as from other species of *Eugenia* from southeastern Brazilian.

Shrub to 4 m. Twigs grey, subterete, with scattered white simple trichomes to 0.2 mm; internodes 20–25 mm. Leaves with petioles 1.5–2 × 0.4 mm; blades narrowly ovate, narrowly elliptic or oblong-ovate, 40–60 × 10–16

Fig. 5. *Eugenia dipetala*. Isotype at BHCB.

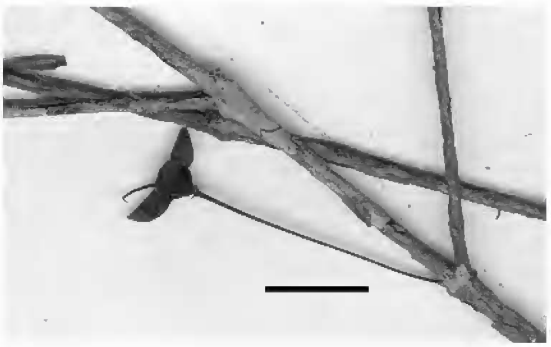

Fig. 6. *Eugenia dipetala*. Detail of old flower, from isotype (scale = 10 mm).

mm, slightly discolorous when dry, markedly bullate and glabrous adaxially, with scattered white trichomes to 0.2 mm abaxially; glandular dots visible against light, smaller than 0.05 mm in diameter and about 30/mm²; apex acuminate to 10–12 mm; base acute or obtuse; midvein sulcate adaxially and prominent abaxially; lateral veins 15 to 20 pairs, leaving the midvein at angles of 80–90 degrees, sulcate adaxially and prominent abaxially; intramarginal vein 0.3–0.5 mm from the revolute margin. Flowers 1 or 2 per axile; pedicels 16–20 × 0.4–0.5 mm, pilose as the blades; bracteoles triangular-lanceolate, 0.8–1 × 0.6–0.8, with cilia to 0.1 mm, persisting after anthesis; flower buds globose to obovate, to 4 × 3 mm, with white trichomes to 0.1 mm, these occasionally more dense on the ovary; calyx lobes four, elliptic to rounded, concave, somewhat unequal, 2–3.5 × 1.8–4 mm; petals two in the flowers examined, rounded, glabrous, white, markedly concave, to 3–5 × 3–5 mm; stamens 70 to 80, 3.5–4.5 mm; anthers elliptic, 1 × 0.5–0.6 mm, eglandular; staminal ring 2–3 mm in diameter; style 4–5 mm, stigma punctiform or slightly capitate, minutely papillose; ovary locules 2; ovules 4 to 5 per locule. Fruits unknown.

Habitat, distribution and phenology.—This species is a shrub from forests of the montane region of central Espírito Santo. It is presently known only from the type collection, from the municipality of Santa Maria de Jetibá. Flowers were collected in March.

Conservation.—The municipality of Santa Maria de Jetibá encompasses an area of 735 km² (IBGE 2014), from from which 2,233 collections have been made (CRIA 2014), with a moderate average of 3 collections/km²; considering this, the uniqueness of the type specimen may be an indicative of its rareness. Nevertheless, considering the absence of additional information, it seems more adequate to score this species as Data Deficient (DD), according to IUCN criteria (IUCN 2012).

Etymology.—The epithet alludes to the two petals in all presently examined flowers of the species, a curious feature evident among all flowers examined in our study, but otherwise unknown for species of the genus, at least in southeastern Brazil.

Affinities.—The leaves of this species somewhat resemble those of *Eugenia gracillima* Kiaerskou (for description see Kiaerskou 1893:120), differing through the characters cited in the diagnosis.

Myrcia cacuminis Kollmann & Sobral, sp. nov. (**Figs. 7–8**). Type: BRAZIL. Espírito Santo: Mun. Águia Branca, 18°56'39"S, 40°47'55"W, 6 Sep 2006, *L. Magnago, V. Demuner, T. Cruz & E. Bausen 1341* (holotype: MBML; isotype: BHCB).

This species is apparently related to *Myrcia capitata*, from which it is distinguished by the petiolate, narrowly elliptic leaves with mostly glabrous adult blades (vs. sessile, ovate, abaxially pilose blades) with cordate bases (vs. cuneate bases) and up to three flowers per inflorescence (vs. five to seven flowers).

Shrub 2–3 m. Twigs terete, 0.8–1.2 mm in diameter at the most distal internode, glabrous or with simple white trichomes to 0.3 mm. Leaves with petioles 4–5 × 0.3–0.7 mm, glabrous or with trichomes to 0.2 mm; blades ovate to narrowly elliptic, 40–54 × 13–22 mm, 2.4–3 times longer than wide, glabrous or with scattered trichomes 0.3–0.4 mm along the midvein adaxially, the indumentum sometimes dense in young blades, concolorous when dry; glandular dots about 0.05 mm in diameter, 10 to 20/mm², visible on both sides; apex and base acute; midvein adaxially sulcate and abaxially prominent; lateral veins 12 to 17 at each side, visible and moderately prominent on both sides, leaving the midvein at angles 60–70 degrees; marginal veins two, 1–1.3 mm and 0.2–0.3 mm from the margin, the margin itself with grey cilia to 0.3 mm at least on young leaves. Inflorescences emerging below the leaves, but coeval with them, one pair in each branch, the axis 20–35 × 0.5–0.6 mm, with simple white trichomes 0.5–0.6 mm, with 2 or 3 sessile and apically crowded flowers; bracts three to five,

Fig. 7. *Myrcia cacuminis*. Isotype at BHCB.

Fig. 8. *Myrcia cacuminis*. Detail of inflorescence, from isotype (scale = 10 mm).

foliaceous, directly subtending the flowers, narrowly ovate to ovate, 9–10 × 4–4.5 mm, with cilia to 0.3 mm; bracteoles foliaceous, ovate to narrowly ovate, to 5 × 2 mm, ciliate as bracts; flower buds globose or obovate, 4 × 3–4 mm, with white trichomes to 0.3 mm, the hypanthium densely pilose; calyx lobes five, subequal, triangular, 2.5–3 × 2 mm; petals rounded or oblate, 3–3.2 × 3.5 mm, white, ciliate; stamens about 100 (based on scars over staminal ring); staminal ring 2–3 mm in diameter; calyx tube 0.5–1 mm deep; style to 9 mm, stigma punctiform and minutely papillose; ovary bilocular, ovules 2 per locule. Fruits globose or oblate, 5–6 × 6–7 mm, unripe in the specimens examined, seeds 2 to 3, reniform, 4–5 × 4 mm, testa light brown, glossy and easily detachable; embryos not completely developed.

Habitat, distribution and phenology.—*Myrcia cacuminis* is a shrub from rocky outcrops at altitudes from 100 to 900 m; it is presently known for the municipalities of Águia Branca and São Roque do Canaã, in the center of the southeastern Brazilian state of Espírito Santo. Flowers and fruits were collected in October.

Conservation.—This species comes from two municipalities from central Espírito Santo, Águia Branca, and São Roque do Canaã, with respectively 454 and 342 km² (IBGE 2014) and 2,447 and 1,601 collections from each (CRIA 2014), resulting in an average of about five collections/km², a reasonable amount of gatherings. Considering this, the small amount of collections may be an indicative of its rareness. Additionally, it fulfills criteria B1 ab(iii) for Endangered (IUCN 2012), since the presently known range of the species is less than 5,000 km² (criterium B1), its habitat also is severely fragmented (Aguiar et al. 2005) (criterium a) and presents a continuing decline in extension (criterium b(iii)), since municipalities in central Espírito Santo have been intensely deforested. (See Mendes & Padovan (2000) for data regarding the neighbouring municipality of Santa Teresa.)

Affinities.—Due to its inflorescence structure, it is apparently related to *Myrcia capitata* O. Berg (for description see Berg 1857–1859:154), a species collected in the cerrados of the state of Minas Gerais, from which it is kept apart by the characters given in the diagnosis.

Etymology.—The epithet is derived from the Latin word for "summit," and alludes to the rocky outcrops on mountain tops where the species was collected.

Paratypes. **BRAZIL. Espírito Santo:** Mun. Águia Branca, 18°56'39"S, 40°47'55"W, 6 Sep 2006, *L. Magnago et al. 1358* (BHCB, MBML, RB); 18°58'40"S, 40°39'56"W, 18 Oct 2006, *V. Demuner et al. 2948* (MBML); mun. São Roque do Canaã, São Jacinto, Militon, 16 Oct 2004, *L. Kollmann et al. 7069* (BHCB, MBML); idem, Misterioso, Pedra dos Três Carneiros, 24 Oct 2004, *Kollmann et al. 7126* (BHCB, MBML).

Plinia ambivalens M. Souza & Sobral, sp. nov. (**Figs. 9–10**). Type: BRAZIL. Bahia: Mun. Arataca, RPPN Caminho das Pedras, em trilha de acesso ao Peito de Moça; 15°10'25"S, 39°20'30"W, 6 Aug 2006, *M.M.M. Lopes, P. Labiak, J. Paixão & L. Gomes 1015* (holotype CEPEC; isotypes BHCB, NY).

This species is apparently related to *Plinia involucrata*, from which it is distinguished by the leaves with petioles to 4 mm (versus up to 3 mm in *P. involucrata*) and blades with midvein and lateral veins visible and moderately raised on both faces (vs. scarcely visible on both faces) and locules with three or more ovules (vs. biovulate locules).

Tree to 13 m. Twigs with white appressed trichomes to 0.5 mm; internodes 15–25 × 1–2 mm, subterete, sometimes longitudinally striate. Leaves with petioles 7–13 × 0.9–1.2 mm; blades elliptic, narrowly elliptic or elliptic-obovate, 65–90 × 30–40 mm, 2–2.3 times longer than wide, slightly discoloured, with white appressed trichomes to 0.5 mm scattered adaxially, more dense but not concealing the surface abaxially, glandular dots smaller than 0.1 mm in diameter, sometimes visible on the surfaces, more visible against light, to 10/mm²; apex acuminate to 5–7 mm; base cuneate or attenuate; midvein plane, biconvex or salient adaxially, prominent abaxially; lateral veins 15–20 pairs, visible and moderately salient on both faces; marginal vein 1–2 mm from the revolute margin. Inflorescences axillary, glomeruliform, the axis 1–2 × 1.5 mm, with 2 to 4 sessile flowers; bracts ovate to widely ovate, basally with 4 to 10 linear colleters 0.3–0.4 × 0.05 mm adaxially, glabrous or with cilia to 0.1 mm, in 3–4 series, progressively larger distally, the basal ones to 1 × 1.5 mm, the most distal ones to 2 × 2.5 mm, these occasionally tearing in two halves due to the development of the flowers; bracteoles apparently in two pairs (the proximal pair more properly a bract, that is, the axis from where the flower arises must be considered a brachyblast), the proximal pair elliptic-ovate, 2–2.2 × 1.5 mm, with scattered simple trichomes to 0.1 mm, initially fused at least partly, the distal pair elliptic-rounded, to 3 × 2 mm, glabrous or

Fig. 9. *Plinia ambivalens*. Isotype at BHCB.

with scattered trichomes to 0.1 mm, with evident cilia to 0.1 mm, partially fused at base, persisting after anthesis; flowers buds obovate, 4–5 × 4 mm, uniformly covered with white or grey simple trichomes 0.5–0.6 mm, with calyx lobes fused; calyx lobes three to four, tearing irregularly, to 1–2 × 2 mm, generally one lobe evidently larger than the others, calyptriform; petals, in the flowers examined, two to three, obovate, to 3 × 2 mm, somewhat vestigial; stamens about 100, 5–6 mm, anthers elliptic, 0.3–0.4 × 0.2, sometimes with one connectival gland; staminal ring 2–3 mm in diameter; calyx tube 1 mm deep, glabrous, persisting after anthesis; style to 6 mm, glabrous, stigma punctiform, papillose; ovary with two internally glabrous locules and three to six ovules per locule. Fruits unknown.

Distribution, habitat and phenology.—This species is known from montane rainforests of central Espírito Santo and southern Bahia, where it grows at altitudes 800–1000 m above sea level. Flowers were collected in July and August.

Conservation.—*Plinia ambivalens* was collected in localities more than 500 km apart, which makes its possible occurrence area larger than 20,000 km², suggesting it could be scored, according to IUCN criteria (IUCN 2012) as a species of least concern (LC).

Fig. 10. *Plinia ambivalens*. Detail of flower bud, from isotype (scale = 10 mm).

Affinities.—This species shows a troubling combination of characters that puts it on the border of two closely related genera, *Plinia* and *Neomitranthes* Kausel ex D. Legrand (for description see Legrand & Klein 1977). Both genera are nested in the *Plinia* group as defined by Lucas et al. (2007), characterized by embryos with plano-convex cotyledons and a mean of nine ovules per locule, among other features. In practical grounds, *Neomitranthes* and *Plinia* can be distinguished by the completely closed calyx that opens through a calyptra and a high number of ovules per locule in *Neomitranthes*, while *Plinia* presents a calyx incompletely closed, rarely forming a calyptra, and mostly two ovules per locule. The combination of characters present in *P. ambivalens* leads to a dilemma, since it has a high number of ovules per locule (typical of *Neomitranthes*) combined with an incompletely closed calyx that tears in irregular lobes, occasionally one of them calyptriform (typical of *Plinia*). Our decision for assigning the present species to *Plinia* rather than to *Neomitranthes* resides in the arrangement of involucral bracts in the inflorescence, a feature apparently absent in *Neomitranthes*.Another quite plausible possibility is that we are dealing with only one variable genus instead of two distinct lineages; if this comes to be proved as the case, then *Plinia* would have priority over *Neomitranthes*, and our choice would at least avoid one more combination in the overburdened nomenclature of the family. Additionally, we are not aware of any species of *Neomitranthes* that should be compared with *Plinia ambivalens*, while among the presently known species of *Plinia* it shows great similarity with the Amazonian *Plinia involucrata* (O. Berg) McVaugh (for description see Berg, 1857–1859:375, under *Myrciaria involucrata*; McVaugh 1958:779 under *Plinia pinnata* and McVaugh 1969:228), from which it is distinguished by the characters listed in the diagnosis.

Etymology.—The epithet alludes to the mixture in this species of characters of the genera *Neomitranthes* and *Plinia* as they are presently defined.

Paratypes.—**BRAZIL. Espírito Santo:** Mun. Santa Teresa, São Antônio, 20 Jul 1999, *L. Kollmann, W. Pizziolo & E. Bausen 2704* (BHCB, MBML, RB); idem, Parque Natural de São Lourenço, árvore 13 m, DAP 57 cm, flor branca, meia encosta, 9 Sep 2003, *T.A. da Cruz, I.N. Subtil & D.T. da Cruz 1* (BHCB, MBML, RB).

Observations.—The collection *Cruz et al. 1* is registered under this number in MBML and in speciesLink (CRIA 2014); some duplicates, however, have been distributed as *Cruz et al. 669* (the data in the labels are identical, and at least the duplicate at BHCB has the number 669 erased and replaced by number 1).

ACKNOWLEDGMENTS

We are grateful for the collectors of the cited specimens and for the curators of cited herbaria for their valuable help, for Rafaela Forzza, Érika von Sohsten Medeiros and Mariana Bünger for their help in preparing the illustrations and to Barney Lipscomb and two anonymous reviewers for very useful suggestions that improved our paper.

REFERENCES

Aguiar, A.P., A.G. Chiarello, S.L. Mendes, & E.N. de Matos. 2005. Os corredores central e da Serra do Mar na mata atlântica brasileira. In: C. Galindo-Leal & I.G. Câmara, eds. Mata atlântica, biodiversidade, ameaças e perspectivas. Belo Horizonte, Fundação SOS Mata Altântica/Conservação Internacional. Pp. 119–132.

Berg, O. 1857–1859. Myrtaceae. In: K.F.P. von Martius, org. Flora Brasiliensis 14(1):1–656.

CRIA (Centro de Referência em Informação Ambiental). 2014. Specieslink (http://www.splink.org.br/index?lang=pt).

Galindo-Leal, C. & I.G. Câmara. 2005. Status do hotspot mata atlântica: uma síntese. In: C. Galindo-Leal & I.G. Câmara, eds. Mata atlântica. Biodiversidade, ameaças e perspectivas. Belo Horizonte, SOS Mata Atlântica, Conservação Internacional. Pp. 3–11.

IBGE (Instituto Brasileiro de Geografia e Estatística). 2014. IBGEcidades@ (http://www.ibge.gov.br/cidadesat/default.php).

IUCN (International Union for the Conservation of Nature). 2012. IUCN red list categories and criteria: Version 3.1. 2nd ed. IUCN, Species Survival Commission, Gland, Switzerland. (on-line version at http://www.iucnredlist.org/technical-documents/categories-and-criteria)

Kiaerskou, H. 1893. *Enumeratio myrtacearum brasiliensium quas collegiunt Glaziou, Lund, Mendonça, Raben, Reinhardt, Schenck, Warming alique.* In: E. Warming, ed. Symbolarum ad floram Brasiliae Centralis cognoscendam 39:1–199.

Landrum, L.R. & M.L. Kawasaki. 1997. The genera of Myrtaceae in Brazil: An illustrated synoptic treatment and identification keys. Brittonia 49:508–536.

Legrand, C.D. & R.M. Klein. 1971. Mirtáceas - *Calyptranthes*. In: R. Reitz, org. Flora ilustrada Catarinense, Itajaí. Pp. 489–552.

Legrand, C.D. & R.M. Klein. 1977. Mirtáceas - *Campomanesia, Feijoa, Britoa, Myrrhinium, Hexachlamys, Siphoneugena, Myrcianthes, Neomitranthes, Psidium*. In: R. Reitz, org. Flora ilustrada Catarinense, Itajaí. Pp. 571–730.

Lucas, E.J., S.A. Harris, F.F. Mazine, S.R. Belsham, E.M. NicLughadha, A. Telford, P.E. Gasson, & M.W. Chase. 2007. Suprageneric phylogenetics of Myrteae, the generically richest tribe in Myrtaceae (Myrtales). Taxon 56:1105–1128.

McVaugh, R. 1958. Flora of Peru - Myrtaceae. Publ. Field Mus. Nat. Hist., Bot. Ser. 13(4):569–819.

McVaugh, R. 1969. Flora of the Guayana Highland - Myrtaceae. Mem. New York Bot. Gard. 18:55–286.

Mendes, S.L. & M.P. Padovan. 2000. A Estação Biológica de Santa Lúcia, Santa Teresa, Espírito Santo. Boletim do Museu de Biologia Mello Leitão (nova série) 11/12:7–34.

Myers, N., R. Mittelmeier, C. Mittelmeier, G.A.B. Fonseca, & J. Kent. 2000. Biodiversity hotspots for conservation priorities. Nature 403:853–858.

Silva, J.M.C. & C.H.M. Casteleti. 2005. Estado da biodiversidade da mata atlântica brasileira. In: C. Galindo-Leal & I.G. Câmara, eds. Mata atlântica. Biodiversidade, ameaças e perspectivas. Belo Horizonte, SOS Mata Atlântica, Conservação Internacional. Pp. 43–59.